

Amana® AIR COMMAND 80

Model GUI (Upflow)

GAS FIRED WARM AIR FURNACE

installation operation INSTRUCTIONS

IMPORTANT TO THE INSTALLER

Before installing this unit please read this manual to familiarize yourself on the specific items which must be adhered to such as maximum external static pressure to unit, air temperature rise, min. or max. cfm and motor speed connections. Affix these Installation Instructions adjacent to the furnace.

TO THE OWNER

It is important that you fill out the owner's registration card and mail it today. When filling in the registration card, be sure to include the Model, Manufacturing and Serial Numbers, plus the installation date.

Your warranty certificate is also supplied with the unit. Read the warranty carefully and note what is covered. Keep the warranty certificate in a safe place, so you can find it, if necessary.

If additional operating instructions are required, call the dealer through whom the purchase was made.

Keep this literature in a safe place for future reference.



WARNING

Should overheating occur or the gas supply fail to shut off, turn off the manual gas control valve to the furnace before shutting off the electrical supply.



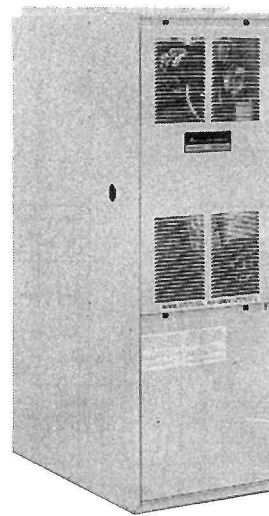
WARNING

FOR YOUR SAFETY

Do not store or use gasoline or other flammable vapors and liquids in the vicinity of this or any other appliance.



RECOGNIZE THIS SYMBOL AS A SAFETY PRECAUTION.



WARNING

Improper installation, adjustment, alteration, service or maintenance can cause injury or property damage or death. Refer to this manual. For assistance or additional information consult a qualified installer, service agency or the gas supplier.



WARNING

FOR YOUR SAFETY WHAT TO DO IF YOU SMELL GAS

- Do not try to light any appliance.
- Do not touch any electrical switch; do not use any phone in your building.
- Immediately call your gas supplier from a neighbor's phone. Follow the gas supplier's instructions.
- If you cannot reach your gas supplier, call the fire department.

THE INSTALLATION AND SERVICING OF THIS EQUIPMENT SHOULD BE PERFORMED ONLY
BY QUALIFIED, EXPERIENCED TECHNICIANS.

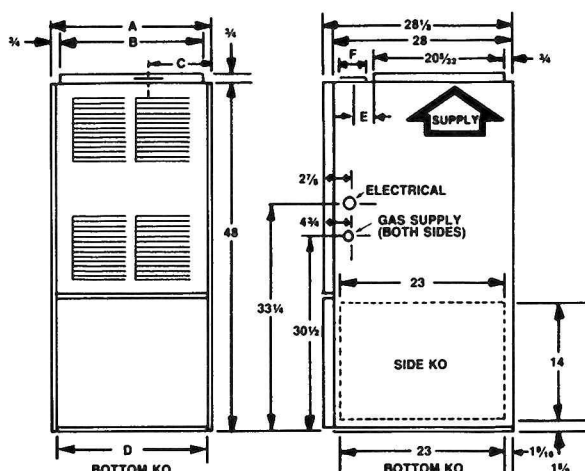
Due to policy of continual product improvement, the right is reserved to change specifications and design without notice.

Induced Draft Gas Furnace Specifications

| Upflow Model | BTUH | | Temp. Rise Range, °F | Number of Burners | Size F.L.A.** | Blower D x W | Type | Blower Horsepower | Blower Speeds | Max. CFM @ .5 ESP | Filters | | | Net Weight | Approx. Ship Weight |
|--------------|---------|---------|----------------------|-------------------|---------------|--------------|------|-------------------|---------------|-------------------|---------|----------------|------|------------|---------------------|
| | Input | Output | | | | | | | | | Size | Type | Qty. | | |
| GUI045B25B | 45,000 | 36,000 | 35-65 | 2 | 10.1 | 9x8 | PSC | 1/4 | 3 | 1050 | 16x25x1 | Semi-Permanent | 1 | 132 | 145 |
| GUI070B30B | 70,000 | 55,000 | 35-65 | 3 | 13.6 | 10x8 | PSC | 1/3 | 4 | 1275 | 16x25x1 | Semi-Permanent | 1 | 148 | 161 |
| GUI070B40B | 70,000 | 55,000 | 35-65 | 3 | 15.6 | 10x8 | PSC | 1/2 | 4 | 1700 | 16x25x1 | Semi-Permanent | 2 | 148 | 161 |
| GUI090B30B | 90,000 | 71,000 | 45-75 | 4 | 13.6 | 10x8 | PSC | 1/3 | 4 | 1220 | 16x25x1 | Semi-Permanent | 1 | 160 | 176 |
| GUI090B50B | 90,000 | 71,000 | 35-65 | 4 | 17.7 | 10x10 | PSC | 1/4 | 4 | 2125 | 16x25x1 | Semi-Permanent | 2 | 160 | 178 |
| GUI115B35B | 115,000 | 91,000 | 40-70 | 5 | 15.6 | 10x10 | PSC | 1/2 | 4 | 1800 | 16x25x1 | Semi-Permanent | 1 | 178 | 196 |
| GUI115B50B | 115,000 | 90,000 | 45-75 | 5 | 17.2 | 10x10 | PSC | 3/4 | 3 | 2125 | 16x25x1 | Semi-Permanent | 2 | 178 | 196 |
| GUI140B35B | 140,000 | 110,000 | 45-75 | 6 | 15.6 | 10x10 | PSC | 1/2 | 4 | 1750 | 16x25x1 | Semi-Permanent | 1 | 188 | 206 |
| GUI140B50B | 140,000 | 111,000 | 45-75 | 6 | 17.2 | 10x10 | PSC | 1/4 | 3 | 2050 | 16x25x1 | Semi-Permanent | 2 | 188 | 206 |

**Includes 5 amps drawn by ignitor during 45-second start up cycle.

UPFLOW



(All dimensions in inches)

| | A | B | C | D | E | F |
|--------|--------|----|--------|--------|---------|---|
| GUI045 | 16 1/2 | 15 | 6 1/8 | 10 1/2 | 2 5/16 | 3 |
| GUI070 | 16 1/2 | 15 | 6 1/8 | 10 1/2 | 2 5/16 | 3 |
| GUI090 | 20 1/2 | 19 | 8 1/8 | 14 1/2 | 2 5/16 | 3 |
| GUI115 | 24 1/2 | 23 | 10 1/8 | 18 1/2 | 2 13/16 | 4 |
| GUI140 | 24 1/2 | 23 | 10 1/8 | 18 1/2 | 2 13/16 | 4 |

NOTES:

1. All furnaces have a redundant gas valve and blower door inter-lock switch.
2. All furnaces are manufactured for use on 120V, 60 Hertz and single phase electrical power supply.
3. **Important:** While the data is presented as a guide it is very important to electrically connect the unit and properly size fuses and wires in accordance with the National Electrical Code and/or all Existing Local Codes.
4. Performance figures are based on Department of Energy information and requirements under continuous operating conditions. Performance will vary with weather conditions and use.

Specifications subject to change without notice.



Amana GUI Series Forced Air Central Furnace Design Complies With Requirements Embodied In The American National Standard Shown Below.
ANSIZ21.47 Central Furnaces

CFM & Temperature Rise vs. External Static Pressure

| Model | Motor Speed | External Static Pressure, Inches Water Column | | | | | | | | | | | | | |
|------------|-------------|---|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | | 0.2 | | 0.3 | | 0.4 | | 0.5 | | 0.6* | | 0.7* | | 0.8* | |
| | | CFM | Rise | CFM | Rise | CFM | Rise | CFM | Rise | CFM | Rise | CFM | Rise | CFM | Rise |
| GUI045B25B | LO | 690 | 48 | 675 | 49 | 660 | 51 | 640 | 52 | 590 | 54 | 530 | 60 | 450 | — |
| | MED | 965 | — | 950 | — | 915 | 36 | 875 | 38 | 820 | 39 | 760 | 42 | 675 | 47 |
| | HI | 1240 | — | 1170 | — | 1100 | — | 1050 | — | 950 | — | 870 | 37 | 780 | 41 |
| GUI070B30B | LO | 725 | — | 720 | — | 700 | — | 675 | — | 580 | — | 515 | — | 420 | — |
| | M-LO | 935 | 55 | 920 | 56 | 900 | 58 | 865 | 60 | 820 | 61 | 770 | — | 690 | — |
| | MED | 1190 | 44 | 1150 | 45 | 1115 | 47 | 1065 | 49 | 1010 | 49 | 945 | 53 | 860 | 58 |
| | HI | 1470 | — | 1410 | 37 | 1345 | 39 | 1275 | 41 | 1200 | 42 | 1110 | 45 | 1000 | 50 |
| GUI070B40B | LO | 1135 | 46 | 1135 | 46 | 1130 | 46 | 1125 | 46 | 1095 | 46 | 1070 | 47 | 1035 | 48 |
| | M-LO | 1340 | 39 | 1335 | 39 | 1325 | 39 | 1300 | 40 | 1270 | 39 | 1235 | 40 | 1180 | 42 |
| | MED | 1570 | — | 1560 | — | 1525 | — | 1485 | — | 1450 | — | 1400 | 36 | 1330 | 37 |
| | HI | 1895 | — | 1835 | — | 1775 | — | 1700 | — | 1630 | — | 1550 | — | 1450 | — |
| GUI090B30B | LO | 850 | — | 830 | — | 800 | — | 775 | — | 730 | — | 680 | — | 610 | — |
| | M-LO | 910 | 73 | 900 | 74 | 870 | — | 840 | — | 800 | — | 750 | — | 690 | — |
| | MED | 1120 | 60 | 1080 | 62 | 1050 | 63 | 1010 | 66 | 960 | 67 | 900 | 72 | 820 | — |
| | HI | 1395 | 48 | 1335 | 50 | 1275 | 52 | 1220 | 55 | 1150 | 56 | 1065 | 61 | 970 | 67 |
| GUI090B50B | LO | 1230 | 54 | 1220 | 55 | 1210 | 55 | 1200 | 56 | 1170 | 55 | 1135 | 57 | 1090 | 59 |
| | M-LO | 1530 | 44 | 1525 | 44 | 1520 | 44 | 1515 | 44 | 1485 | 44 | 1455 | 44 | 1410 | 46 |
| | MED | 1770 | 38 | 1770 | 38 | 1755 | 38 | 1725 | 39 | 1700 | 38 | 1660 | 39 | 1600 | 40 |
| | HI | 2330 | — | 2280 | — | 2220 | — | 2125 | — | 2055 | — | 1965 | — | 1850 | — |
| GUI115B35B | LO | 1180 | — | 1175 | — | 1150 | — | 1125 | — | 1090 | — | 1050 | — | 995 | — |
| | M-LO | 1410 | 60 | 1400 | 61 | 1375 | 62 | 1350 | 63 | 1310 | 64 | 1265 | 66 | 1200 | 69 |
| | MED | 1655 | 51 | 1645 | 52 | 1620 | 53 | 1575 | 54 | 1480 | 56 | 1410 | 59 | 1310 | 64 |
| | HI | 2000 | 43 | 1950 | 44 | 1875 | 45 | 1800 | 47 | 1725 | 48 | 1630 | 51 | 1520 | 55 |
| GUI115B50B | LO | 1530 | 56 | 1520 | 56 | 1500 | 57 | 1475 | 58 | 1430 | 58 | 1370 | 61 | 1280 | 65 |
| | MED | 1730 | 49 | 1720 | 50 | 1700 | 50 | 1675 | 51 | 1620 | 51 | 1560 | 53 | 1470 | 57 |
| | HI | 2375 | — | 2275 | — | 2200 | — | 2125 | — | 2030 | — | 1920 | — | 1760 | 47 |
| GUI140B35B | LO | 1160 | — | 1150 | — | 1135 | — | 1124 | — | 1090 | — | 1040 | — | 980 | — |
| | M-LO | 1330 | — | 1315 | — | 1295 | — | 1275 | — | 1230 | — | 1175 | — | 1100 | — |
| | MED | 1585 | 65 | 1560 | 66 | 1525 | 68 | 1475 | 70 | 1425 | 71 | 1340 | — | 1230 | — |
| | HI | 1930 | 54 | 1875 | 55 | 1835 | 57 | 1750 | 59 | 1680 | 60 | 1600 | 63 | 1480 | 68 |
| GUI140B50B | LO | 1490 | 70 | 1470 | 71 | 1450 | 72 | 1425 | 73 | 1380 | 73 | 1330 | — | 1260 | — |
| | MED | 1660 | 62 | 1650 | 63 | 1635 | 63 | 1625 | 64 | 1590 | 64 | 1550 | 65 | 1490 | 68 |
| | HI | 2290 | — | 2230 | 47 | 2130 | 49 | 2050 | 51 | 1960 | 52 | 1850 | 55 | 1700 | 59 |

NOTE:

1. CFM in chart above, is with filter(s) as shipped with furnace.
2. INSTALLATION IS TO BE ADJUSTED TO OBTAIN TEMPERATURE RISE WITHIN THE RANGE SPECIFIED ON THE RATING PLATE.
3. The above chart is for information only. For satisfactory operation, external static pressure should not exceed value shown on rating plate. The shaded area indicates ranges in excess of maximum external static pressure allowable when heating.
4. The above chart is for U.S. furnaces installed at 0-2000 feet. At higher altitudes, a properly derated unit will have approximately the same temperature rise at a particular CFM, while the ESP at that CFM will be lower.

GENERAL INSTALLATION INFORMATION



WARNING

Improper installation, repair, operation or maintenance of this product may result in property damage, bodily injury or death from hazards such as fire, explosion, smoke, soot, condensation, electric shock or carbon monoxide.

This is an upflow type furnace for installation in a basement, closet, or utility room. To assure that your furnace operates safely and efficiently, it must be installed, operated and maintained in accordance with these installation and operating instructions, the venting manual, all local building codes and ordinances, or, in their absence, the latest edition of the National Fuel Gas Code, ANSI Z223.1*.

The normal heating capacity of the furnace should be greater than or equal to the total heat loss of the house or structure. The total heat loss should be calculated by an approved method or in accordance with "A.S.H.R.A.E. Guide" or "Manual J-Load Calculations" published by the Air Conditioning Contractors of America.

Do not install this furnace in a mobile home, trailer, or recreation vehicle.

*Obtain from:

American National Standards Institute
1430 Broadway
New York, NY 10018

TRANSPORTATION DAMAGE

All furnaces are securely packed in shipping containers approved by the National Safe Transit Committee. The carton should be checked upon arrival for external damage. If damage is found, a request for inspection by carrier's agent should be made in writing immediately.

The furnace should be carefully inspected upon arrival for damage and bolts or screws which may have loosened in transit. In the event of damage, the consignee should:

1. Make notation on delivery receipt of any visible damage to shipment or container.
2. Notify carrier promptly and request an inspection.
3. In case of concealed damage, carrier should be notified as soon as possible — preferably within 5 days.
4. File the claim with the following supporting documents within the 9-month statute of limitations.
 - a. Original Bill of Lading, certified copy, or indemnity bond.
 - b. Original paid freight bill or indemnity in lieu thereof.
 - c. Original invoice or certified copy thereof, showing trade and other discounts or reductions.
 - d. Copy of the inspection report issued by carrier's representative at the time damage is reported to the carrier.

The carrier is responsible for making prompt inspection of damage and for a thorough investigation of each claim. The distributor or manufacturer will not accept claims from dealers for transportation damage.

LOCATING THE FURNACE



WARNING

To avoid possible equipment damage, fire, personal injury or death, the following points must be observed when installing the unit.



Do not install the furnace where combustion air for the furnace is frequently heavily contaminated with compounds containing chlorine or fluorine. Common sources of such compounds include: indoor swimming pools and chlorine bleaches, paint strippers, adhesives, paints, varnishes, sealers, waxes (which are not yet dried) and solvents used during construction and remodeling. Various commercial and industrial processes may also be sources of chlorine/fluorine compounds.



If the furnace is installed near an area which will be frequently contaminated by chlorine/fluorine compounds, the furnace should be sealed from this area so that little contaminated air can reach the furnace. The furnace must still have an adequate supply of combustion air, either from a neighboring uncontaminated room or from outdoors. For details, see the "Combustion and Ventilation Air" section below.



The furnace should be set on a level floor. If the floor may become wet or damp at times, the furnace should be supported above the floor on a concrete base sized approximately 1 1/2" larger than the base of the furnace.



The furnace should be as centralized as is practical with respect to the air distribution system.



Provisions must be made for venting combustion products outdoors through a proper venting system as outlined in the Venting Manual. The length of flue pipe could be a limiting factor in locating the furnace. For details, see the Venting Manual shipped with the furnace.



Allow clearances from the enclosure as per Table 1 for fire protection, proper operation, and service access. These clearances must be permanently maintained. The combustion and ventilating air openings in the front and top panels of the furnace must never be obstructed.



When installed in a residential garage the furnace must be positioned so the burners and ignition source are located not less than 18 inches above the floor and protected from physical damage by vehicles.



Do not install the furnace directly on carpeting, tile, or other combustible material other than wood flooring.

CLEARANCES TO COMBUSTIBLE SURFACES.* (inches)
TABLE 1

| | |
|-------|-----|
| Front | 6 |
| Left | 1 |
| Right | 2** |
| Rear | 0 |
| Top | 1 |
| Flue | 6* |
| Floor | C |

C = Combustible Floor (Wood Only)

* = May be 1" if Type B vent is used.

** = 2" clearance for GUI045B25A, GUI070B30A, & GUI070B40A only (May be 1" when Type B vent is used.) All others may be 1".

ACCESSIBILITY CLEARANCES (MINIMUM)

36" at front is required for servicing or cleaning.

NOTE: In all cases accessibility clearance shall take precedence over clearances from the enclosure where accessibility clearances are greater.

COMBUSTION AND VENTILATION AIR



WARNING

Property damage, bodily injury or death may occur if the furnace and any other fuel-burning appliances are not provided with enough fresh air for proper combustion and ventilation of flue gases. Most homes require outside air to be supplied into the furnace area.

Improved construction and additional insulation in homes has reduced the heat loss and made these homes much tighter around door and windows so that air infiltration is minimal. This creates a problem to supply combustion and ventilation air for gas fired or other fuel burning appliances. Any use of appliances that pull air out of the house (clothes dryers, exhaust fans, fireplaces, etc.) increases this problem and appliances could be starving for air.

In addition, these energy saving measures mean that your home will retain more water vapor and have a higher relative humidity. High humidity, especially during cold weather, may be damaging to buildings because condensation forms on windows and inside walls.

AIR REQUIREMENTS

Most homes will require that outside air be supplied to the furnace area by means of ventilation grilles or ducts connecting directly to the outdoors or spaces open to the outdoors such as attics or crawl spaces. The following information on air for combustion and ventilation is reproduced from the National Fuel Gas Code NFPA54/ANSI Z223.1 Section 5.3.

5.3.1 General:

(a) The provisions of 5.3 apply to gas utilization equipment installed in buildings and which require air for combustion, ventilation and dilution of flue gases from within the building. They do not apply to (1) direct vent equipment which is constructed and installed so that all air combustion is obtained from the outside atmosphere and all flue gases are discharged to the outside atmosphere, or (2) enclosed furnaces which incorporate an integral total enclosure and use only outside air for combustion and dilution of flue gases.

(b) Equipment shall be installed in a location in which the facilities for ventilation permit satisfactory combustion of gas, proper venting and the maintenance of ambient temperature at safe limits under normal conditions of use. Equipment shall be located so as not to interfere with proper circulation of air. When normal infiltration does not provide the necessary air, outside air shall be introduced.

(c) In addition to air needed for combustion, process air shall be provided as required for: cooling of equipment or material, controlling dew point, heating, drying, oxidation or dilution, safety exhaust, odor control, and air for compressors.

(d) In addition to air needed for combustion, air shall be applied for ventilation, including all air required for comfort and proper working conditions for personnel.

(e) While all forms of building construction cannot be covered in detail, air for combustion, ventilation and dilution of flue gases for gas utilization equipment vented by natural draft normally may be obtained by application of one of the methods covered in 5.3.3 and 5.3.4.

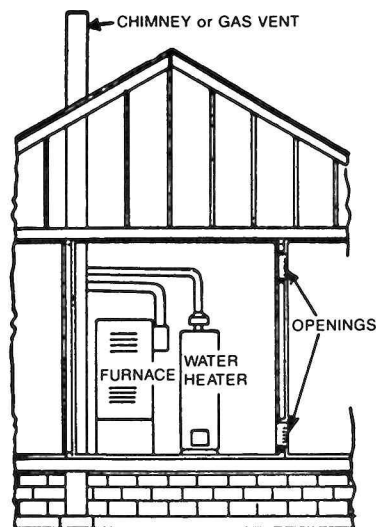
(f) Air requirements for the operation of exhaust fans, kitchen ventilation systems, clothes dryers, and fireplaces shall be considered in determining the adequacy of a space to provide combustion air requirements.

5.3.2 Equipment Located in Unconfined Spaces: In unconfined spaces in buildings infiltration may be adequate to provide air for combustion, ventilation, and dilution of flue gases. However, in buildings of unusually tight construction additional air shall be provided using the methods described in 5.3.3-b or 5.3.4.

Space, Unconfined. For purposes of this Code, a space whose volume is not less than 50 cubic feet per 1,000 Btu per hour of the aggregate input rating of all appliances installed in that space. Rooms communicating directly with the space in which the appliances are installed, through openings not furnished with doors, are considered a part of the unconfined space.

5.3.3 Equipment Located in Confined Spaces:

(a) *All Air from Inside the Building:* The confined space shall be provided with two permanent openings communicating directly with an additional room(s) of sufficient volume so that the combined volume of all spaces meets the criteria for an unconfined space. The total input of all gas utilization equipment installed in the combined space shall be considered in making this determination. Each opening shall have a minimum free area of 1 square inch per 1,000 Btu per hour of the total input rating of all gas utilization equipment in the confined space, but not less than 100 square inches. One opening shall be within 12 inches of the top and one within 12 inches of the bottom of the enclosure. (See Figure 1.)

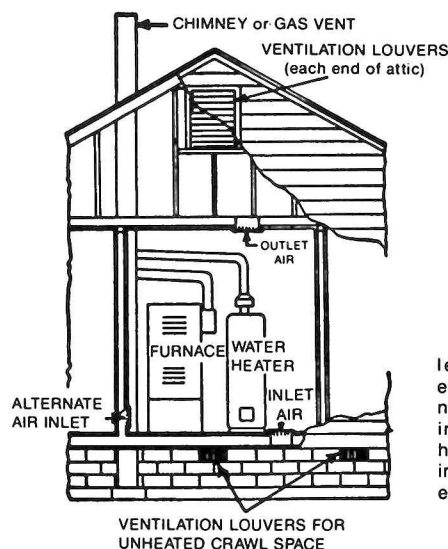


Note: Each opening shall have a free area of not less than one square inch per 1,000 Btu per hour of the total input rating of all equipment in the enclosure, but not less than 100 square inches.

Fig. 1. Equipment Located in Confined Spaces; All Air from inside the Building. See 5.3.3-a.

(b) *All Air From Outdoors:* The confined space shall be provided with two permanent openings, one commencing within 12 inches of the top and one commencing within 12 inches of the bottom of the enclosure. The openings shall communicate directly, or by ducts, with the outdoors or spaces (crawl or attic) that freely communicate with the outdoors.

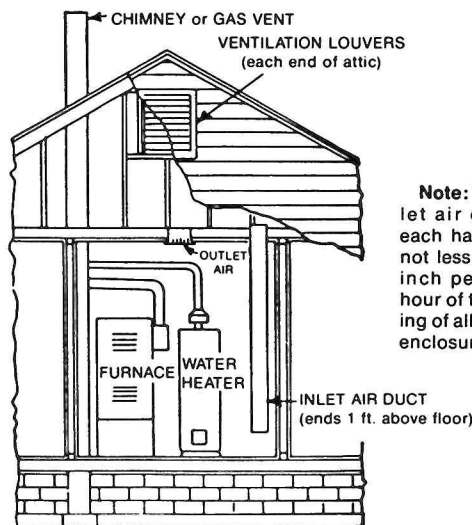
1. When directly communicating with the outdoors, each opening shall have a minimum free area of 1 square inch per 4,000 Btu per hour of total input rating of all equipment in the enclosure. (See Figure 2.)



Note: The inlet and outlet air openings shall each have a free area of not less than one square inch per 4,000 Btu per hour of the total input rating of all equipment in the enclosure.

Fig. 2. Equipment Located in Confined Spaces; All Air from Outdoors — Inlet Air from Ventilated Crawl Space and Outlet Air to Ventilated Attic. See 5.3.3-b.

2. When communicating with the outdoors through vertical ducts, each opening shall have a minimum free area of 1 square inch per 4,000 Btu per hour of total input rating of all equipment in the enclosure. (See Figure 3.)

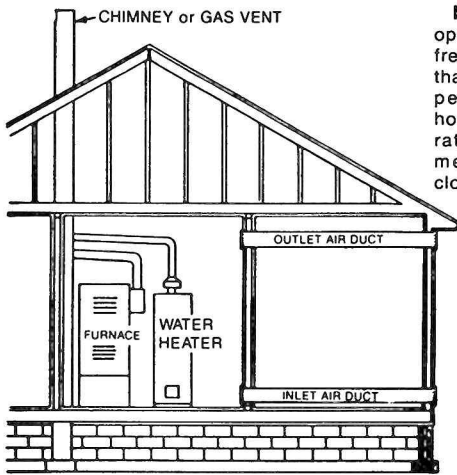


Note: The inlet and outlet air openings shall each have a free area of not less than one square inch per 4,000 Btu per hour of the total input rating of all equipment in the enclosure.

Fig. 3. Equipment Located in Confined Spaces; All Air from Outdoors Through Ventilated Attic. See 5.3.3-b.

3. When communicating with the outdoors through horizontal ducts, each opening shall have a minimum free area of 1 square inch per 2,000 Btu per hour of total input rating of all equipment in the enclosure. (See Figure 4.)

4. When ducts are used, they shall be of the same cross-sectional area as the free area of the openings to which they connect. The minimum dimension of rectangular air ducts shall be not less than 3 inches.



Note: Each air duct opening shall have a free area of not less than one square inch per 2,000 Btu per hour of the total input rating of all equipment in the enclosure.*

*If the appliance room is located against an outside wall and the air openings communicate directly with the outdoors, each opening shall have a free area of not less than one square inch per 4,000 Btu per hour of the total input rating of all appliances in the enclosure.

Fig. 4. Equipment Located in Confined Spaces; All Air from Outdoors. See 5.3.3-b.

5.3.4 Specially engineered Installations:

The requirements of 5.3.3 shall not necessarily govern when special engineering, approved by the authority having jurisdiction, provides an adequate supply of air for combustion, ventilation, and dilution of flue gases.

5.3.5 Louvers and Grilles:

In calculating free area in 5.3.3, consideration shall be given to the blocking effect of louvers, grilles or screens protecting openings. Screens used shall not be smaller than 1/4 inch mesh. If the area through a design of louver or grille is known, it should be used in calculating the size of opening required to provide the free area specified. If the design and free area is not known, it may be assumed that wood louvers will have 20-25 percent free area and metal louvers and grilles will have 60-75 percent free area. Louvers and grilles shall be fixed in the open position or interlocked with the equipment so that they are opened automatically during equipment operation.

5.3.6 Special Conditions Created by Mechanical Exhausting or Fireplaces:

Operation of exhaust fans, ventilation systems, clothes dryers, or fireplaces may create conditions requiring special attention to avoid unsatisfactory operation of installed gas utilization equipment.

VENTING

For information on venting, please consult the venting manual shipped with the furnace.



WARNING

This furnace is not recommended for common venting application with other induced draft appliances. Failure to follow these instructions can result in bodily injury or death from asphyxiation. Therefore, carefully read and follow all instructions given in this section and the venting manual instructions shipped with the furnace.

WHEN AN EXISTING FURNACE IS REMOVED FROM A VENTING SYSTEM SERVING OTHER APPLIANCES, the venting system may be too large to properly vent the remaining attached appliances.

The following steps shall be followed with each appliance remaining connected to the common venting system placed in operation, while the other appliances remaining connected to the common venting system are not in operation.

- Seal any unused openings in the common venting system.
- Visually inspect the venting system for proper size and horizontal pitch and determine there is no blockage or restriction, leakage, corrosion and other deficiencies which could cause an unsafe condition.
- Insofar as is practical, close all building doors and windows and all doors between the space in which the appliances remaining connected to the common venting system are located and other spaces of the building. Turn on clothes dryers and any appliance not connected to the common venting system. Turn on any exhaust fans, such as range hoods and bathroom exhausts, so they will operate at maximum speed. Do not operate a summer exhaust fan. Close fireplace dampers.
- Follow the lighting instructions. Place the appliance being inspected in operation. Adjust thermostat so appliance will operate continuously.
- Test for spillage at the draft hood relief opening after 5 minutes of main burner operation. Use the flame of a match or candle, or smoke from a cigarette, cigar, or pipe.
- After it has been determined that each appliance remaining connected to the common venting system properly vents when tested as outlined above, return doors, windows, exhaust fans, fireplace dampers and any other gas-burning appliance to their previous conditions of use.
- If improper venting is observed during any of the above tests, the common venting system must be corrected in accordance with the latest edition of the National Fuel Gas Code, ANSI Z223.1.

If resizing any portion of the common venting system, use the appropriate table in Appendix G in the latest edition of the National Fuel Gas Code, ANSI Z223.1. Also consult the venting manual shipped with the furnace.

DUCTWORK—AIR FLOW

Duct systems and register sizes must be properly designed for the C.F.M. and external static pressure rating of the furnace. Ductwork should be designed in accordance with the recommended methods of "Air Conditioning Contractors of America" manual.

A duct system should be installed in accordance with Standards of the National Board of Fire Underwriters for the Installation of Air Conditioning, Warm Air Heating and Ventilating Systems, Pamphlets No. 90A and 90B.

Furnace models GUI045B25B, GUI070B30B, GUI090B30B, GUI115B35B and GUI140B35B are shipped with one filter, (refer to Pg. 2 for size), intended for the return air duct to be attached to either side of the furnace cabinet. If the return air duct is to be attached to the bottom of the furnace cabinet, the filter that was supplied with the furnace, may not be of the proper size. Refer to the chart below for filter sizes when using bottom return.

BOTTOM RETURN AIR FILTERS

| Model | Filter Size | Type |
|----------------------------------|-------------|------|
| GUI045B25B, GUI070B(30,40)B | 14 x 24 x 1 | P |
| GUI090B(30,50)B | 16 x 25 x 1 | P |
| GUI115B(35,50)B, GUI140B(35,50)B | 20 x 25 x 1 | P |

16 x 26 x 1 ?

The sketch below shows how the filter is retained over the bottom return air opening.



Furnace models GUI070B40B, GUI090B50B, GUI115B50B and GUI140B50B are shipped with two filters (refer to Pg. 2 for size). If these furnaces are to be operated at high speed, then two return air connections must be made. These may be made on both sides of the furnace cabinet, or on one side and the bottom. If one of the returns is connected to the bottom, refer to the chart above for proper filter size. Failure to have two return air connections, when these furnaces are operated on high speed can result in insufficient airflow for air conditioning requirements and excessive air velocity through the filter. If these furnaces will not be run on high speed, one return air connection will be adequate.

Guide dimples locate the bottom or side cutouts. Use a straight edge to scribe lines connecting the dimples. Cut out the opening on these lines. For bottom return air connection the bottom of the cabinet has to be removed before the furnace is positioned on the raised platform or set on top of the return air duct.

It is a must that a closed return duct system be used, with the return duct connected to the furnace. Supply and return duct connections to the unit may be made with flexible joints to minimize noise transmission. If a central return is used, a connecting duct must be installed between the unit and the utility room wall so the furnace blower will not interfere with combustion air or draft. The room, closet or alcove must not be used as a return air chamber.

When the furnace is used in connection with a cooling unit the furnace should be installed in parallel with or on the upstream side of the cooling unit to avoid condensation in the heating element. With a parallel flow arrangement, the dampers or other means used to control the flow of air should be adequate to prevent chilled air from entering the furnace and if manually operated, must be equipped with means to prevent operation of either unit unless the damper is in the full heat or cool position.

GAS SUPPLY AND PIPING

The rating plate is stamped with the model number, type of gas and gas input rating. Make sure the furnace is equipped to operate on the type of gas available.

| GAS TYPE | SUPPLY PRESSURE | |
|----------|-----------------|-------|
| | MAX | MIN |
| Natural | 10.0" | 5.0" |
| Propane | 14.0" | 11.0" |

Inlet gas pressure must not exceed the maximum value shown in table above.

The minimum supply pressure should not be varied downward because this could decrease the heating capacity of the furnace. Gas input to the burners should not exceed the rated input shown on the rating plate.

HIGH ALTITUDE DERATE

When this furnace is installed at altitudes above 2000 feet, the furnace input must be derated 4% for each 1000 feet above sea level because the density of the air is reduced.

In some areas the gas supplier will derate the heating value

of the gas at a rate of 4% for each 1000 feet above sea level. If he does not do so, smaller orifices will be required at altitudes above 3500 feet (non-derated natural gas) or 4500 feet (non-derated propane).

A different pressure switch will be required at altitudes more than 4000 feet above sea level. This is required regardless of the heat content of the fuel used.

High altitude kits can be purchased depending upon the altitude and usage of propane or natural gas.

Adjustment of the manifold pressure to a lower pressure reading than what is specified on the furnace nameplate is not a proper derate procedure. With a lower density of air and a lower manifold pressure at the burner orifice, the orifice will not aspirate the proper amount of air into the burner. This can cause incomplete combustion of the gas, flash back, and possible yellow tipping.

GAS PIPING



CAUTION

To avoid possible unsatisfactory operation or equipment damage due to under-firing of equipment, do not undersize the natural gas/propane piping from the meter/tank to the furnace. When sizing per the tables, include all appliances that could be operated simultaneously.

The gas pipe supplying the furnace must be properly sized based on the cubic feet per hour of gas flow required, specific gravity of the gas and length of the run. The gas line installation must comply with local codes, or in the absence of local codes, with the latest edition of the National Fuel Gas Code ANSI Z223.1.

NATURAL GAS CAPACITY OF PIPE IN CUBIC FEET OF GAS PER HOUR (CFH)

| Length of Pipe in Feet | Nominal Black Pipe Size | | | | |
|---------------------------|-------------------------|------|-----|--------|--------|
| | 1/2" | 3/4" | 1" | 1 1/4" | 1 1/2" |
| 10 | 132 | 278 | 520 | 1,050 | 1,600 |
| 20 | 92 | 190 | 350 | 730 | 1,100 |
| 30 | 73 | 152 | 285 | 590 | 980 |
| 40 | 63 | 130 | 245 | 500 | 760 |
| 50 | 56 | 115 | 215 | 440 | 670 |
| 60 | 50 | 105 | 195 | 400 | 610 |
| 70 | 46 | 96 | 180 | 370 | 560 |
| 80 | 43 | 90 | 170 | 350 | 530 |
| 90 | 40 | 84 | 160 | 320 | 490 |
| 100 | 38 | 79 | 150 | 305 | 460 |

CONNECTING THE GAS PIPING - NATURAL GAS

Refer to Figure 6 for the general layout at the furnace. The following rules apply:

1. Use black iron or steel pipe and fittings for the building piping.
2. Use pipe joint compound on male threads only. Pipe joint compound must be resistant to the action of the fuel used.
3. Use ground joint unions.
4. Install a drip leg to trap dirt and moisture before it can enter the gas valve. The drip leg must be a minimum of three inches long.
5. Use two pipe wrenches when making connection to the gas valve to keep it from turning.
6. Install a manual shut-off valve.
7. Tighten all joints securely.

8. The furnace shall be connected to the building piping by one of the following:
 - a. Rigid metallic pipe and fittings.
 - b. Semirigid metallic tubing and metallic fittings. Aluminum alloy tubing shall not be used in exterior locations.
 - c. Listed gas appliance connectors used in accordance with the terms of their listing that are completely in the same room as the equipment.
 - d. In "b" and "c" above, the connector or tubing shall be installed so as to be protected against physical and thermal damage. Aluminum-alloy tubing and connectors shall be coated to protect against external corrosion where they are in contact with masonry, plaster, or insulation or are subject to repeated wettings by such liquids as water (except rain water), detergents or sewage.

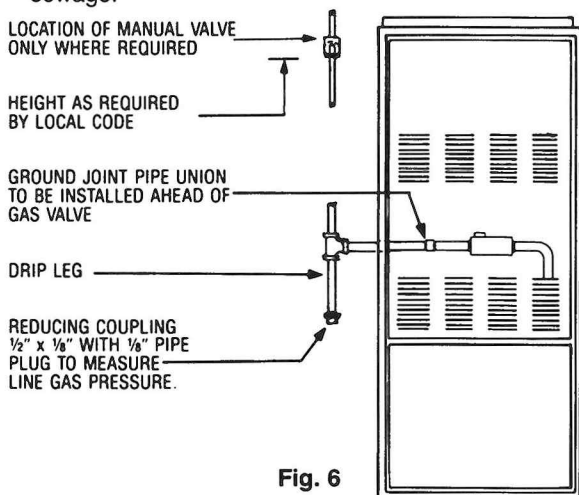


Fig. 6

CHECKING THE GAS PIPING



CAUTION

To avoid the possibility of property damage, personal injury or fire, the following instructions must be performed regarding gas connections, pressure testing, location of shutoff valve and installation of gas piping.



The unit and its gas connections must be leak tested before placing in operation. Because of the danger of explosion or fire, never use a match or open flame to test for leaks. Never exceed specified pressures for testing. Higher pressure may damage the gas valve and cause overfiring which may result in heat exchanger failure.



This unit and its individual shut-off valve must be disconnected from the gas supply piping system during any pressure testing of that system at test pressures in excess of 1/2 psig (3.48 kPa).



This unit must be isolated from the gas supply system by closing its individual manual shutoff valve during any pressure testing of the gas supply piping system at test pressures equal to or less than 1/2 psig (3.48 kPa).



The shut off valve should be located in a convenient location (within (6) six feet of unit) between the meter and the unit. Proper sizing of gas piping depends on the cubic feet per hour of gas flow required, specific gravity of the gas and the length of the run. Lay out the piping plan and refer to the National Fuel Gas

code manual to obtain the correct pipe sizing for each branch run, etc.

TANKS AND PIPING — PROPANE UNITS

All propane gas equipment must conform to the safety standards of the National Board of Fire Underwriters (See NBFU Manual 58).

For satisfactory operation, propane gas pressure must be 10 inch W.C. at the furnace manifold with all gas appliances in operation. Maintaining proper gas pressure depends on three main factors:

1. Vaporization rate, which depends on (a) temperature of the liquid, and (b) "wetted surface" area of the container or containers.
2. Proper pressure regulation. (Two-stage regulation is recommended from the standpoint of both cost and efficiency.)
3. Pressure drop in lines between regulators, and between second stage regulator and the appliance. Pipe size required will depend on length of pipe run and total load of all appliances.

Complete information regarding tank sizing for vaporization, recommended regulator settings, and pipe sizing is available from most regulator manufacturers and propane gas suppliers.

Propane is an excellent solvent, and special pipe dope must be used when assembling piping for this gas as it will quickly dissolve white lead or most standard commercial compounds. Shellac base compounds resistant to the actions of liquified petroleum gases such as Gasolac, Stalactic, Clyde's or John Crane are satisfactory.

Please refer to Fig. 7 for typical propane gas installations.

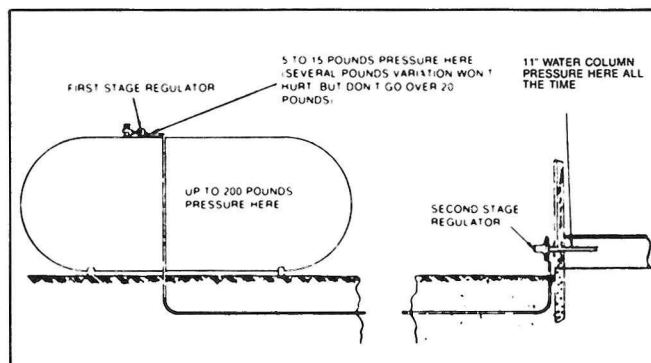


Fig. 7 — Typical Propane Piping

PROPANE PIPING CHARTS

Sizing Between First and Second Stage Regulator
Maximum Propane Capacities listed are based on 2 PSIG Pressure Drop at 10 PSIG Setting. Capacities in 1,000 BTU/HR

| PIPE OR TUBING LENGTH, FEET | TUBING SIZE, O.D., TYPE L | | | | | NOMINAL PIPE SIZE, SCHEDULE 40 | |
|-----------------------------|---------------------------|-------|-------|-------|-------|--------------------------------|-------|
| | 3/8" | 1/2" | 5/8" | 3/4" | 7/8" | 1/2" | 3/4" |
| 10 | 730 | 1,700 | 3,200 | 5,300 | 8,300 | 3,200 | 7,500 |
| 20 | 500 | 1,100 | 2,200 | 3,700 | 5,800 | 2,200 | 4,200 |
| 30 | 400 | 920 | 2,000 | 2,900 | 4,700 | 1,800 | 4,000 |
| 40 | 370 | 850 | 1,700 | 2,700 | 4,100 | 1,600 | 3,700 |
| 50 | 330 | 770 | 1,500 | 2,400 | 3,700 | 1,500 | 3,400 |
| 60 | 300 | 700 | 1,300 | 2,200 | 3,300 | 1,300 | 3,100 |
| 80 | 260 | 610 | 1,200 | 1,900 | 2,900 | 1,200 | 2,600 |
| 100 | 220 | 540 | 1,000 | 1,700 | 2,600 | 1,000 | 2,300 |
| 125 | 200 | 490 | 900 | 1,400 | 2,300 | 900 | 2,100 |
| 150 | 190 | 430 | 830 | 1,300 | 2,100 | 830 | 1,900 |
| 175 | 170 | 400 | 780 | 1,200 | 1,900 | 770 | 1,700 |
| 200 | 160 | 380 | 730 | 1,100 | 1,800 | 720 | 1,500 |

To Convert to Capacities at 15 PSIG Settings — Multiply by 1.130

To Convert to Capacities at 5 PSIG Settings — Multiply by 0.879

Sizing Between Single or Second Stage Regulator and Appliance*
Maximum Propane Capacities Listed are Based on 1/2" W.C. Pressure Drop at 11" W.C. Setting. Capacities in 1,000 BTU/HR

| PIPE OR TUBING LENGTH, FEET | TUBING SIZE, O.D. TYPE L | | | | | | NOMINAL PIPE SIZE, SCHEDULE 40 | | | | | |
|-----------------------------|--------------------------|------|------|------|------|--------|--------------------------------|------|-------|--------|--------|--|
| | 3/8" | 1/2" | 5/8" | 3/4" | 7/8" | 1-1/8" | 1/2" | 3/4" | 1" | 1-1/4" | 1-1/2" | |
| 10 | 39 | 92 | 199 | 329 | 501 | 935 | 275 | 567 | 1,071 | 2,205 | 3,307 | |
| 20 | 26 | 62 | 131 | 216 | 346 | 630 | 189 | 393 | 732 | 1,456 | 2,229 | |
| 30 | 21 | 50 | 107 | 181 | 277 | 500 | 152 | 315 | 590 | 1,212 | 1,858 | |
| 40 | 19 | 41 | 90 | 145 | 233 | 427 | 129 | 267 | 504 | 1,039 | 1,559 | |
| 50 | 18 | 37 | 79 | 131 | 198 | 376 | 114 | 237 | 448 | 913 | 1,417 | |
| 60 | 16 | 35 | 72 | 121 | 187 | 340 | 103 | 217 | 409 | 824 | 1,275 | |
| 80 | 13 | 29 | 62 | 104 | 155 | 289 | 89 | 185 | 346 | 724 | 1,086 | |
| 100 | 11 | 26 | 55 | 90 | 138 | 255 | 78 | 162 | 307 | 630 | 976 | |
| 125 | 10 | 24 | 48 | 81 | 122 | 224 | 69 | 146 | 275 | 567 | 866 | |
| 150 | 9 | 21 | 43 | 72 | 109 | 202 | 63 | 132 | 252 | 511 | 787 | |
| 200 | 8 | 19 | 39 | 66 | 100 | 187 | 54 | 112 | 209 | 439 | 665 | |
| 250 | 8 | 12 | 36 | 60 | 93 | 172 | 48 | 100 | 185 | 390 | 590 | |

*DATA IN ACCORDANCE WITH NFPA PAMPHLET NO. 54

PROPANE MODELS ONLY



WARNING

If your propane gas furnace is installed in a basement, an excavated area or a confined space, we recommend that you contact your propane supplier about installing a warning device that would alert you to a gas leak. We recommend this because propane gas is heavier than air and any leaking gas can settle in any low areas or confined spaces. This propane gas would create a **DANGER OF EXPLOSION OR FIRE**. If you suspect the presence of gas, follow the instructions on the cover of the user's manual.

ELECTRICAL WIRING



CAUTION

To avoid electrical shock, injury or death, **disconnect electrical power before changing any electrical wiring.**

The wiring harness on this unit is furnished as an integral part of the furnace. Field alteration to comply with electrical codes should not be required.

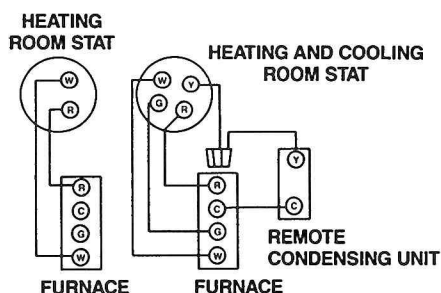
Power supply to the furnace must be N.E.C. Class 1, and must comply with all applicable codes. The furnace must be electrically grounded in accordance with local codes or in their absence, with the latest edition of the National Electrical Code, ANSI/NFPA No. 70. A fused disconnect should be provided and sized in accordance with the unit minimum circuit ampacity.



CAUTION

Wiring to the unit must be properly polarized and grounded.

TYPICAL FIELD WIRING
(24V CONTROL CIRCUIT)



A 40VA transformer and auxiliary fan relay are built into the furnace so that it may be used with most cooling equipment.

The furnace is designed for heating applications and has an auxiliary fan relay built in for use with cooling equipment.

See the wiring diagram for both 115v. and 24v. wiring details and the Heat Anticipator Setting. This is located inside of the blower compartment door and on Page 14 of this manual.

LOW VOLTAGE
TERMINAL BOARD

HIGH
VOLTAGE (115v)
CONNECTIONS

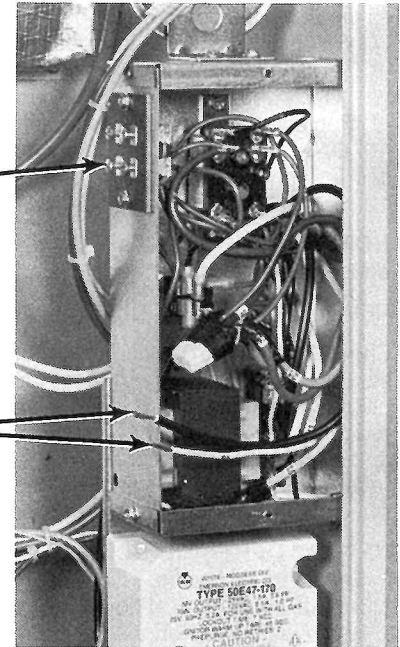


Fig. 8 — Field Wiring Connections.

HEAT ANTICIPATOR SETTING

The heat anticipator in the room thermostat must be correctly adjusted to obtain the proper number of heating cycles per hour and to prevent the room temperature from "overshooting" the room thermostat setting. Heat anticipator must be set at 0.8 amps.

GENERAL INFORMATION

This furnace is equipped with a self diagnostic electronic ignition control which lights the burners. It also has an induced draft blower to draw combustion air into the heat exchanger.

Keep the blower access door and upper access panel in place except for inspection and maintenance. An interlock switch prevents furnace operation if the blower door is not in place.

On new installations or if a functional part such as the gas valve, pressure switch or fan/limit control has been replaced, the operation of the furnace should be checked.

Check furnace operation as outlined in the following instructions. If any sparking, odors, or unusual noises are encountered, shut off electrical power and recheck for wiring errors, or obstructions in or near the blower motors.

SELF DIAGNOSTIC IGNITION CONTROL

In this furnace, there may be a red indicator light located on the ignition control board near the MV terminal. This light is designed to help the servicer diagnose potential service problems with either the furnace or the ignition control itself. If the furnace is malfunctioning, and the red light is on continuously, the ignition control is faulty. If the red light is flashing, the furnace is probably in a lock-out condition. If the indicator light is not on or flashing and the furnace does not operate properly then the problem likely exists elsewhere in the furnace and not in the ignition control board.

OPERATING INSTRUCTIONS

1. Close the manual gas valve external to the furnace.
2. Turn off the electrical power supply to the furnace.
3. Set room thermostat to lowest possible setting.
4. Remove the door on the front of the furnace.
5. This furnace is equipped with an ignition device which automatically lights the burner. Do not try to light burner by hand.
6. Turn the gas control valve knob clockwise to "OFF" position. Do not force. See Fig. 9.
7. Wait five (5) minutes to clear out any gas.
8. Turn gas control valve knob counter clockwise to "ON." See Fig. 9.
9. Replace the door on the front of the furnace.
10. Open the manual gas valve external to the furnace.
11. Turn on the electrical power supply to the furnace.
12. Set the thermostat(s) to desired setting.

NOTE: There is a one minute delay between thermostat energizing and burner firing.

RESET AFTER LOCK-OUT

Should ignition not be achieved after three tries for any reason it will be necessary to reset the electronic ignition module. To reset it is only necessary to turn the thermostat below room temperature for thirty seconds and then return the setting to the desired temperature. The furnace may also be reset after lockout by disengaging the electric disconnect switch to the furnace for thirty seconds.

TO TURN OFF FURNACE

1. Set the thermostat(s) to lowest setting.
2. Turn off the electrical power supply to the furnace.
3. Remove the door on the front of the furnace.
4. Turn the gas control clockwise to "OFF" position. Do not force. See Fig. 9.
5. Close manual gas shut off valve external to the furnace.
6. Replace the door on the furnace.

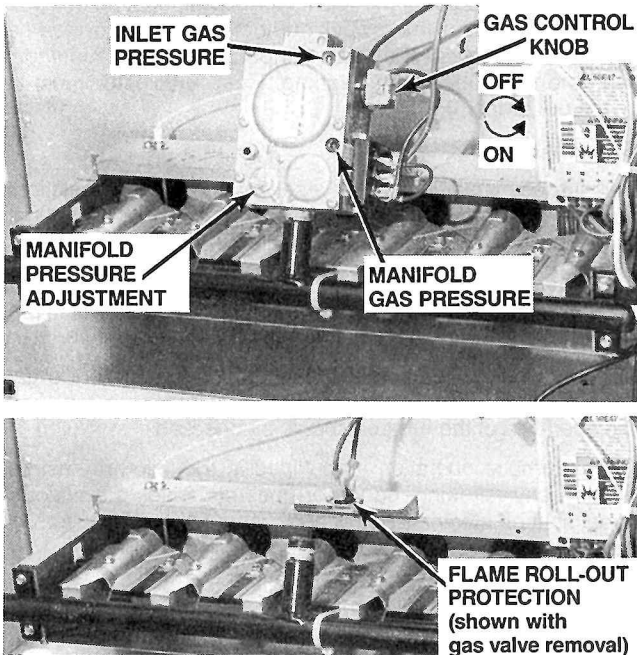


Fig. 9 — Gas Pressures.

CHECK GAS INPUT AND PRESSURES

Gas supply pressure and manifold pressure with the burners operating must be as specified on the rating plate.

ROLL-OUT PROTECTION CONTROL

If the flames from the burners are not properly drawn into the heat exchanger, a protection device will open causing the fur-

nace to shut off. The protection device is located on the manifold assembly. (See Fig. 11)



CAUTION

The cause must be investigated by an Amana authorized servicer before any attempt is made to engage the manual reset device and turn the unit back on.

CHECK THE MANIFOLD PRESSURE

A tapped opening is provided in the gas valve to facilitate measurement of the manifold pressure. A "U Tube" manometer having a scale range from 0 to 12 inches of water should be used for this measurement. The manifold pressure must be measured with the burners operating.

To adjust the pressure regulator, remove the adjustment screw or cover on the gas valve. Turn out (counterclockwise) to decrease pressure, turn in (clockwise) to increase pressure. Only small variations in gas flow should be made by means of the pressure regulator adjustment. In no case should the final manifold pressure vary more than plus or minus 0.3 inches water column from the specified pressure. Any major changes in flow should be made by changing the size of the burner orifices. (Fig. 9)

CHECK THE GAS INPUT

To measure the gas input using the gas meter proceed as follows:

1. Turn off gas supply to all other appliances except the furnace.
2. With the furnace operating, time the smallest dial on the meter for one complete revolution. If this is a 2 cubic foot dial, divide the seconds by 2; if it is a 1 cubic foot dial, use the seconds as is. This gives the seconds per cubic foot of gas being delivered to the furnace.

3. $\text{INPUT} = \text{GAS HTG VALUE} \times 3600 \div \text{SEC. PER CUBIC FOOT}$

Example: Natural gas with a heating value of 1000 Btu per cubic foot and 34 seconds per cubic foot as determined by Step 2, then:

$$\begin{aligned}\text{Input} &= 1000 \times 3600 \div 34 \\ &= 106,000 \text{ Btu per Hour}\end{aligned}$$

Note: BTU content of the gas should be obtained from the gas supplier.

This measured input must not be greater than the input indicated on the rating plate of the furnace.

4. Relight all other appliances turned off in step 1 above. Be sure all pilot burners are operating.

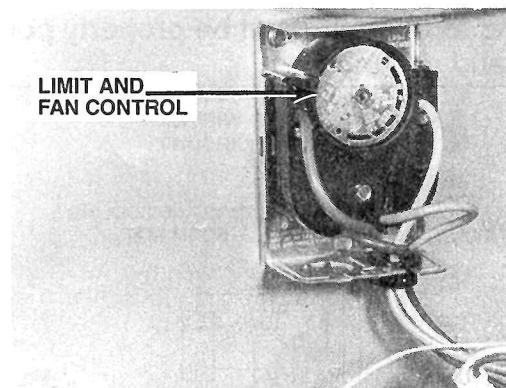


Fig. 10 — Fan and Limit Control.

CHECK LIMIT AND FAN CONTROL

Check limit control operation after 15 minutes of operation by blocking the return air grille(s). (Fig. 10)

1. After several minutes the main burners must go OFF. Blower will continue to run.
2. Remove air restrictions and main burners will relight after a cooldown period of a few minutes.

Adjust the thermostat setting below room temperature.

1. Main burners must go off.
2. Circulating Air Blower should continue to run briefly until supply air temperature drops to approximately 100-90 deg. F.

Fan and limit controls are preset at the factory. The control is set for the fan to go off at 100-90 deg. F.

NOTE: If necessary, adjust fan ON/OFF settings to obtain satisfactory comfort level. The fan comes on at approximately 125 deg. F.



CAUTION

Do not adjust the fan OFF setting so low as to give continuous fan operation. The burners cannot relight until after the supply air temperature is low enough to shut OFF the fan control. Because of this, low OFF settings of the fan control could cause the building to become uncomfortably cool before the burners could relight.



WARNING

To avoid premature failure of heat exchanger or possible property damage, injury or fire, do not adjust the limit control, which is factory preset.

CHECK TEMPERATURE RISE

Check the temperature rise through the unit by placing thermometers in supply and return air registers as close to the furnace as possible.

1. All registers must be open; all duct dampers must be in their final (fully or partially open) position, and the unit operated for 15 minutes before taking readings.
2. The temperature rise must be within the range specified on the rating plate.

NOTE: Air temperature rise is the temperature difference between supply and return air.

With a properly designed system, the proper amount of temperature rise will normally be obtained when the unit is operated at rated input with the recommended blower speed.

If the correct amount of temperature rise is not obtained, it may be necessary to change the blower speed. A higher blower speed will lower the temperature rise. A slower blower speed will increase the temperature rise.

NOTE: Blower speed must be set to give the correct air temperature rise through the furnace as marked on the rating plate.

CHECK MAIN BURNER FLAME

Flames should be stable, soft and blue, (dust may cause orange tips but they must not be yellow). They should extend directly outward from the burner without curling, floating or lifting off. (Fig. 11)

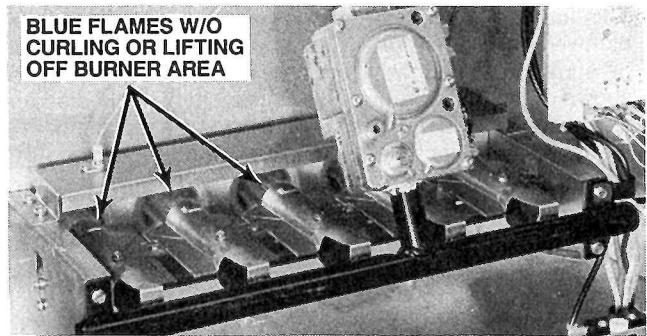


Fig. 11 — Burner Flame.

CHANGING BLOWER SPEEDS



WARNING

To avoid electrical shock, injury or death, when changing speed taps turn off power to the furnace.

A multi-speed motor is used in the furnace blower. It provides easy speed selection for both heating and cooling air flow. Page 3 shows the CFM and E.S.P. relationship for proper selection of heating and cooling speeds.

Refer to the WIRING DIAGRAM on the furnace to connect the proper wires to the correct motor leads. All unused motor leads must have wirenuts.



CAUTION

Some installations will use a different blower speed for cooling than is used for heating. If this is the case, do not set the thermostat fan switch to ON (constant fan operation) without first confirming that the cooling fan speed will give a temperature rise within the limits listed on the unit nameplate. Temperature rises outside of the limits listed could result in premature failure of the heat exchanger or venting system.

MAINTENANCE



DANGER

To avoid electrical shock, injury or death, disconnect electrical power before performing any maintenance.

Have the furnace checked at least once every year, before the heating season begins, to be sure that there is adequate combustion air and that the vent system is working properly.

Have chimney flue and vent pipe checked to be sure they are not blocked by debris, which would permit fumes to enter the house. Replace any rusted out vent pipe.

AIR FILTER



WARNING

Never operate furnace without a filter installed as dust and lint will build up on internal parts resulting in loss of efficiency, equipment damage and possible fire.

This furnace is equipped with a permanent type washable high-velocity filter(s). After filter is washed and dry it should be sprayed with adhesive for best efficiency. (Type may be shown on the filter frame). Filter(s) should be inspected and cleaned every two months as required. If the replacement of the filter(s) becomes necessary, it must be replaced with a filter of the same type and size.

Remember that dirty filters are the most common cause of inadequate heating or cooling performance.

FILTER REMOVAL

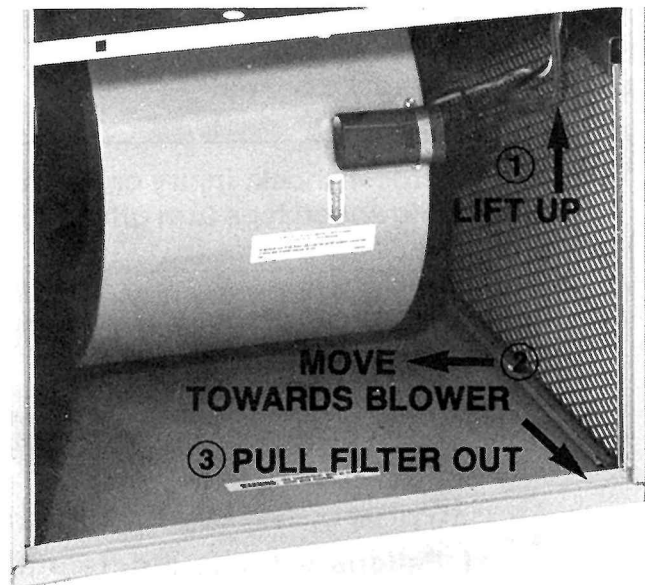


Fig. 12 — Filter Removal.

To remove the filter turn the latches on lower door. Remove the door. The blower motor will automatically stop through the interlock switch.

The filter may be removed by taking a hold of the lower portion of the filter, lift up to disengage it from the lower railing, move towards blower, drop filter down. Pull filter outward. (Fig. 12)

If side return(s) is (are) used, the filter(s) must be of the permanent washable type with dimensions of 16 x 25 x 1.

Use a vacuum cleaner to clean out the blower area and the adjacent area of the return air duct.

Clean, wash and dry the permanent filter. Both sides should then be sprayed with a dust adhesive as recommended on adhesive container. Re-install filter by placing it into the furnace along the side of the blower. Engage filter in the top rail, move towards side of furnace and drop it into the bottom rail. **BE SURE AIRFLOW DIRECTION ARROW POINTS TOWARDS BLOWER.**

When the filter is located in the bottom of the furnace on a bottom return system the filter is held in its location by a sheet metal retainer strap. To change or clean the filter merely slide one end of the retainer towards the front and remove the filter.

BLOWER MOTOR, COMPARTMENT, WHEEL

Once each year oil your blower motor by adding 4 to 6 drops of SAE#20 or #30 motor oil to each motor bearing oil tube. **DO NOT OVER OIL.**

(Note: Some blower motors may be permanently lubricated and do not require oiling. This type of motor does not have oil ports.)

At least once a month during the heating and cooling seasons, remove the blower compartment door and clean the compartment of any dirt and lint that may have accumulated there.

Periodically check the blower wheel in your furnace and clean if necessary using a bristle brush.

VENT BLOWER MOTOR

The vent blower motor may be oiled annually with 6 drops of Anderoil 465 oil. (3 drops in each oil port-Fig. 13).

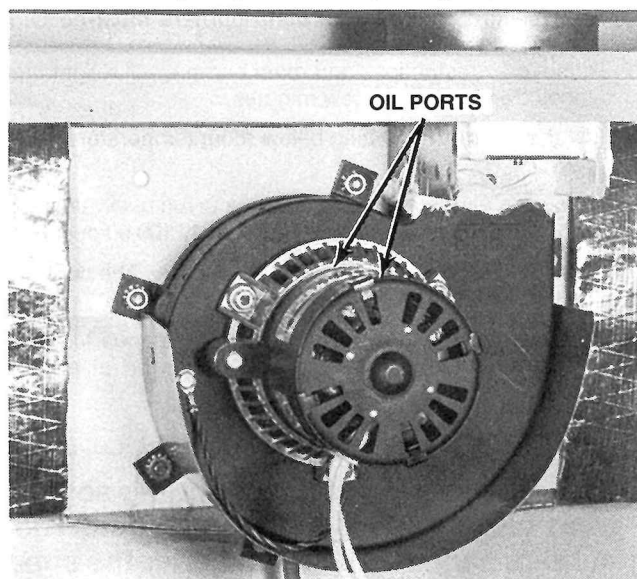


Fig. 13 — Vent Blower Motor.

FLUE PASSAGES

At the start of each heating season, inspect and if necessary, clean the furnace flue passages.

CLEANING FLUE PASSAGES (QUALIFIED SERVICEMAN ONLY)

1. Shut off electric power and gas supply to the furnace.
2. Remove burner assembly by disconnecting the gas line and removing the manifold brackets from the partition panel.
3. Remove the flue from the induced draft blower and the collector box from the partition panel.
4. The primary heat exchanger tubes can be cleaned using a round wire brush attached to a length of high grade stainless steel cable, such as drain cleanout cable. Attach a variable speed reversible drill to the other end of the spring cable. Slowly rotate the cable with the drill and insert it into one of the primary heat exchanger tubes. While reversing the drill, work the cable in and out several times to obtain sufficient cleaning. Repeat for each tube.
5. When all heat exchanger tubes have been cleaned, replace the parts in the reverse order in which they were removed.

BURNERS



WARNING

Electrical components are contained in the upper compartment. To avoid electrical shock, injury or death, do not remove any internal compartment covers or attempt any adjustment. Contact a qualified service agent at once if an abnormal flame appearance should develop.

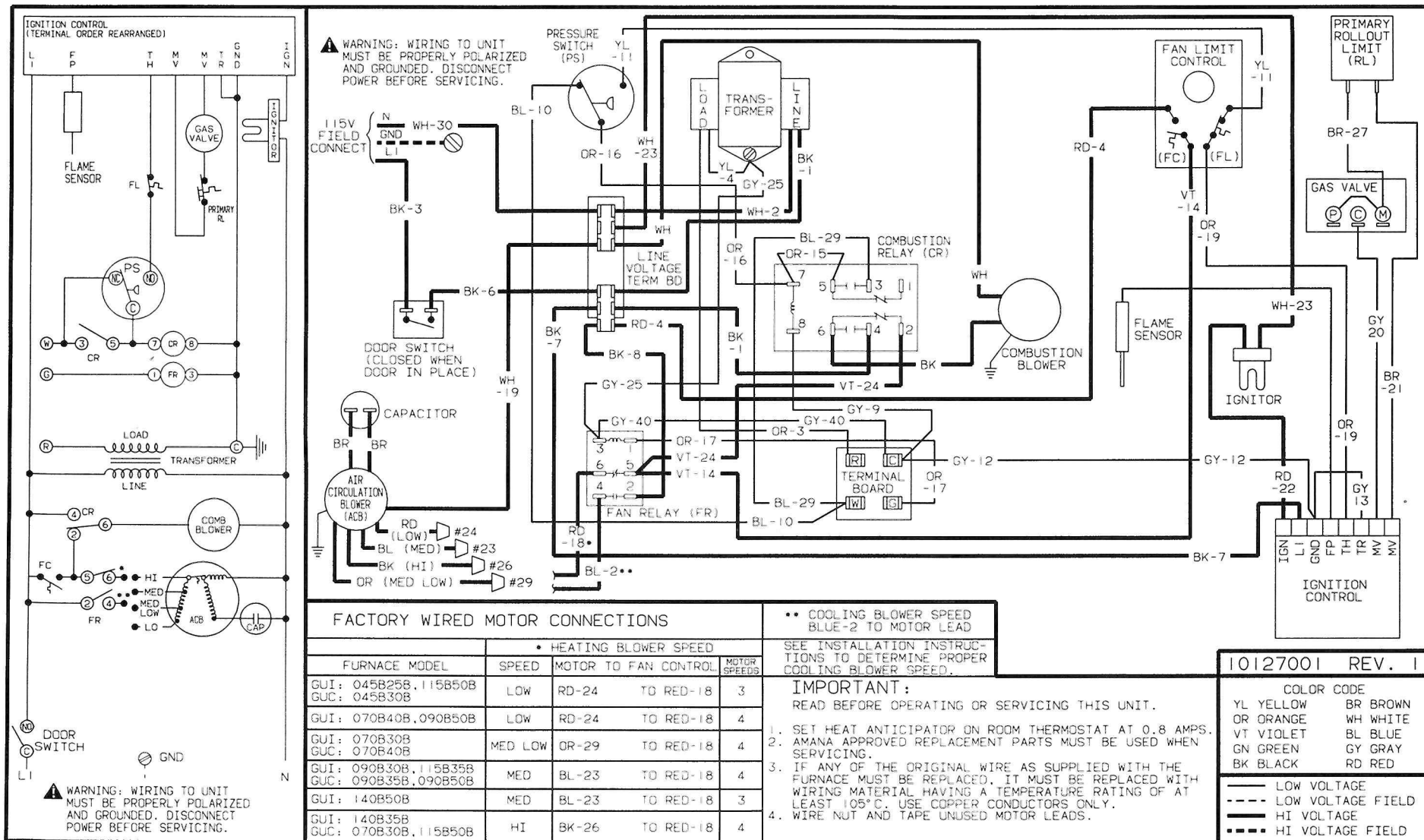
Periodically during the heating season make a visual check of the burner flames. Turn the furnace on at the thermostat. Wait a few minutes, since any dislodged dust will alter the normal flame appearance. Flames should be stable, quiet, soft and blue with slightly orange tips. They should not be yellow. They should extend directly outward from the burner ports without curling downward, floating or lifting off the ports. (See Fig. 11)

FUNCTIONAL PARTS LIST

GENERAL INFORMATION

1. When ordering any of the listed functional parts, be sure to provide the furnace model, manufacturing, and serial numbers with the order.
2. Although only functional parts are shown in the parts list, all sheet metal parts, doors, etc. may be ordered by description.
3. Parts are available from your Amana distributor.

| | |
|-----------------------|----------------------|
| Gas Valve | Heat Exchanger |
| Gas Orifice, Natural | Door Switch |
| Gas Orifice, LP | Transformer |
| Burner | Blower Relay |
| Ignitor | Combustion Relay |
| Flame Sensor | Terminal Board |
| Ignitor Clip | Blower Wheel |
| Gas Manifold | Blower Housing |
| Ignition Switch | Blower Cutoff |
| Fan/Limit Switch | Blower Motor |
| Pressure Switch | Motor Mount Bracket |
| Pressure Switch Hose | Capacitor |
| Induced Draft Blower | Filter, 16 x 25 x 1, |
| Collector Box | Permanent |
| Blower/Box Gasket | |
| Flame Roll-out Switch | |



WARNING

Disconnect electrical power before servicing.